



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,264	12/21/2001	Raschid Jose Bezama	FIS920010260US1	7876

32074 7590 10/27/2004

INTERNATIONAL BUSINESS MACHINES CORPORATION  
DEPT. 18G  
BLDG. 300-482  
2070 ROUTE 52  
HOPEWELL JUNCTION, NY 12533

EXAMINER  
MUTSCHLER, BRIAN L

ART UNIT 1753	PAPER NUMBER
------------------	--------------

DATE MAILED: 10/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/026,264

Applicant(s)

BEZAMA ET AL.

Examiner

Brian L. Mutschler

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2004 and 13 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Comments***

1. The objection to the specification has been overcome by Applicant's amendment.
2. The objection to claims 6, 7, 8, 15, and 17 has been overcome by Applicant's amendment correcting the minor informalities.
3. The rejection of claims 1-11, 14, and 16 under 35 U.S.C. 112, second paragraph, has been overcome by Applicant's amendment and arguments.
4. The rejections of claims 1-20 under 35 U.S.C. 103(a) over Casey et al. in view of Hogaboom has been withdrawn in light of Applicant's argument. The rejection is withdrawn only because Hogaboom does not expressly teach that the apparatus is operable to apply a voltage to the second nozzle, as recited in element (f) of claims 1 and 12. The nozzle is in electrical communication with the power source because it is connected through the electrolyte. However, Hogaboom does not disclose the material that comprises the nozzle and how a voltage can be applied between the second nozzle and the article. Therefore, the rejections set forth in the prior Office action do not clearly obviate the limitations recited in the instant claims. It is also noted that the point of application of the voltage does not appear to be necessary because the voltage can be applied at either the nozzle or the box-shaped member as taught by Hogaboom and still function equivalently.

### ***Drawings***

Art Unit: 1753

5. The drawings were received on September 13, 2004. These drawings are acceptable.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 10-13, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 870 854 A1, herein referred to as EP '854.

Regarding claims 1 and 12, EP '854 discloses an apparatus for cleaning articles comprises a source of a cleaning agent (either alkali aqueous solution or water) and opposing nozzle assemblies (figs. 1 and 2). Each nozzle assembly comprises a plurality of nozzles, including nozzles **1, 2, 4, 5**, wherein nozzles **1** and **2** are connected to a power source to electrolytically clean the article **S** (col. 4, line 55 to col. 6, line 9). The apparatus further comprises supply lines **1a, 2a** for supplying the alkali aqueous solution to the nozzles **1, 2** (col. 5, lines 10-14). The other nozzles **4, 5** must also have supply lines to supply cleaning agent to the solution. A transport assembly comprising rollers **8, 9** is used to move the article relative to the nozzles (figs. 1 and 2).

Regarding claims 2 and 3, the nozzles **1, 2, 4, 5** of the assemblies are operable together (figs. 1 and 2).

Regarding claims 4 and 13, the nozzle assemblies comprise rinsing nozzles 4 for spraying cleaning water (figs. 1 and 2; col. 5, lines 25-27).

Regarding claims 10, 11, 19, and 20, the apparatus of EP '854 is capable of cleaning a metallic screening mask that has a metal-containing residue. The article and residue relate to the intended use of the apparatus and do not structurally limit the apparatus. The apparatus of EP '854 is designed to electrolytically clean metal articles using an alkali aqueous solution, and thus, the apparatus is capable of performing the intended use of the instant claims.

Since EP '854 teaches all of the structural limitations recited in the instant claims, the reference is deemed to be anticipatory.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 870 854 A1, as applied above to claims 1-4, 10-13, 19, and 20, and further in view of Geissler et al. (U.S. Pat. No. 6,238,529).

EP '854 discloses an apparatus having the limitations recited in claims 1-4, 10-13, 19, and 20 of the instant invention, as explained above in section 7.

The apparatus of EP '854 differs from the instant invention because EP '854 does not disclose that the conduit is insulative, as recited in claims 5 and 14.

Geissler et al. disclose an apparatus for electrolytically treating an article and also disclose a prior art apparatus that uses plastic supply lines to minimize the effect of the anode and cathode (col. 2, lines 7-24).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the apparatus of EP '854 to use insulative conduits as taught by Geissler et al. so that the supply conduit will not interfere with the anode and cathode of the electrolytic cleaning system. Furthermore, the use of insulative conduits would have been obvious to one of ordinary skill in the art because insulative conduits avoid the problems of corrosion associated more reactive materials.

10. Claims 6, 7, 9, 15, 16, 18, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 870 854 A1, as applied above to claims 1-4, 10-13, 19, and 20, and further in view of Chandross et al. (U.S. Pat. No. 5,849,173).

EP '854 discloses an apparatus having the limitations recited in claims 1-4, 10-13, 19, and 20 of the instant invention, as explained above in section 7.

The apparatus of EP '854 differs from the instant invention because EP '854 does not disclose the following:

- a. The cleaning agent is TMAH, as recited in claims 6 and 15.
- b. The concentration of TMAH is in the range of 0.2 to 2 weight percent, as recited in claims 7 and 16.

- c. The concentration of TMAH in the spray of the first and second nozzles is the same, as recited in claims 9 and 18.
- d. The concentration of TMAH is in the range of 0.4 to 0.5 weight percent, as recited in claims 21 and 22.

Chandross et al. teach a method for electrolytically treating an article using an electrolyte containing TMAH (col. 4, lines 41-57). Chandross et al. further teach that the concentration of the electrolyte solution is not very critical and provide an example of a range from 0.1 to 5M solution of aqueous alkali solution, which overlaps the claimed range (col. 4, lines 53-57).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the aqueous alkali solution of EP '854 to use a TMAH-containing aqueous alkali solution as taught by Chandross et al. because TMAH is a known solution for use in electrolytic etching, and the use of a known compound for its known purpose is an obvious modification. See MPEP 2144.06. The limitation of claims 9 and 18 recites an intended use and does not further limit the structure of the apparatus.

11. Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 870 854 A1, as applied above to claims 1-4, 10-13, 19, and 20, and further in view of Wee et al. (U.S. Pat. No. 6,383,303).

EP '854 discloses an apparatus having the limitations recited in claims 1-4, 10-13, 19, and 20 of the instant invention, as explained above in section 7.

The apparatus of EP '854 differs from the instant invention because EP '854 does not disclose that the nozzles have a plurality of holes having a diameter of 0.030 inches with a center to center pitch spacing of 0.066 inches(?), as recited in claims 8 and 17.

The size and spacing of holes in a nozzle is a result effective variable that depends on several parameters. These parameters include the spacing of the nozzle and the article, the pressure of the fluid, the viscosity of the fluid, the desired fluid flow rate, etc. An example of holes provided in a nozzle plate is taught by Wee et al., who teach a nozzle plate having a plurality of holes having a diameter of about 0.8 mm to 1.6 mm (0.03 inches to 0.06 inches) and a spacing of about 4 mm to 6 mm (0.16 inches to 0.24 inches) (col. 8, lines 8-14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the nozzles of EP '854 to use a plurality of holes as taught by Wee et al. and to use holes having the claimed size and spacing because the holes allow the direction and control of the fluid impinging on the article to be treated and the size and spacing is a results effective variable that is dependent on many operation parameters within the skill of one in the art to determine.

### ***Response to Arguments***

12. Applicant's arguments filed July 22, 2004, with respect to the rejection of claims 1-20 under 35 U.S.C. 103(a) over Casey et al. in view of Hogaboom have been fully



considered. The rejection has been withdrawn because Hogaboom does not disclose how a voltage can be applied between the second nozzle and the article.

13. Applicant's arguments filed July 22, 2004, with respect to the rejections of claims 1-20 over EP '854 have been fully considered but they are not persuasive.

14. Regarding the rejection of claims 1-4, 10-13, 19, and 20 under 35 U.S.C. 102(b) as being anticipated by EP '854, Applicant presents three arguments.

15. First, Applicant argues that the instant claims differ from the apparatus of EP '854 because "EP '854 electrocleans first and then rinses second" (see page 10 of Applicant's response). This argument is not persuasive because the order of operations is irrelevant because it does not further limit the apparatus being claimed. Furthermore, as shown in Figure 2 of EP '854, the apparatus is used by first rinsing with nozzles 5, electrocleaning with nozzles 1 and 2, rinsing with nozzles 4, electrocleaning again with nozzles 1 and 2, and then rinsing with nozzles 4 and 5. Therefore, Applicant's first argument is not persuasive.

16. Second, Applicant argues that "the 'cleaning agent' provided by nozzles 4 and 5 of EP '854 apparently does not provide any chemical and mechanical removal of residual material as does Applicants' first spraying of the cleaning agent" (see page 10 of Applicant's response). This argument also refers to the intended use of the apparatus. However, EP '854 does teach a use that anticipates the intended use. As shown in Figure 2, the two sets of nozzles 1, 2 perform the same operation recited in the instant claims. Both sets of nozzles electroclean, while the physical impact of the spray would mechanically remove material.

17. Third, Applicant argues that the instant claims are distinguished over EP '854 because the same cleaning agent is applied by both the first and second nozzles and that EP '854 teaches a cleaning agent first applied by nozzles **1** and **2** and water applied by nozzles **4** and **5** (see page 10 of Applicant's response). While it is true that the apparatus of EP '854 teaches that cleaning agent is applied by nozzles **1** and **2** and water is applied by nozzles **4** and **5**, the apparatus still anticipates the instant claims because it teaches all of the structural limitations recited in the instant claims.

Furthermore, the apparatus of EP '854 teaches the use of two sets of nozzles **1**, **2**, each of which apply cleaning agent (see Figure 2 of EP '854). Therefore, all four nozzles dispense cleaning agent.

18. Regarding the rejection of claims 5 and 14, Applicant argues that "the teaching of Geissler is not applicable to Applicant's invention" because Geissler's nozzle is connected to a power source (see page 12 of Applicant's response). This argument is not responsive because Geissler teaches that conductive tubes (conduits) affect the electrical field between the anode and the cathode. This effect is present regardless of whether the nozzle is connected to the power source because the conduit would provide a current pathway. Therefore, Applicant's argument is not persuasive.

19. Regarding the rejection of claims 7 and 16, Applicant argues that the concentration of TMAH is "much more critical" in the instant apparatus than in the apparatus of Chandross et al. (see page 13 of Applicant's response). However, Applicant has not provided any support for this opinion. Chandross et al. disclose the use of TMAH in the concentrations claimed. Therefore, since Chandross et al. and EP

Art Unit: 1753

'854 are concerned with the same endeavor, namely electrolytically removing material, then the combination is deemed to be appropriate.

20. Applicant has not provided arguments with respect to the claims not addressed above.

### ***Conclusion***

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Mutschler whose telephone number is (571) 272-1341. The examiner can normally be reached on Monday-Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BLM  
October 21, 2004

  
NAM NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700